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Time To Get Some ZZs? Navigating Generation Z Values in Extension Programming through a Systems Lens

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Abstract

The purpose of this study was to identify programming values of Generation Z college students to offer insight into future programming and adaptation of current systems within Extension to prepare for the next generation of stakeholders. Researchers approached this study with the philosophy that Extension should aspire to be a learning organization and continually seek to understand current and future stakeholders to navigate societal changes. Q-methodology was used to quantitatively capture student priorities for 42 programming areas with three subcategories of people, environment, and economy and jobs. An initial sample of 158 was paired down to a P-set of 21. Results of the Q-Sort indicated three factors of group priorities: (a) Economic and People-Centric; (b) People-Environment Centric with Limited Focus; and (c) Environmental-Centric. Results show a need for programming related to the environment and the protection of natural resources (Factor 3) and addressing societal concerns like drug and alcohol abuse (Factor 1). For non-urban and prior Extension user audiences (Factor 2) developing programming that connects environmental issues with people and societal issues is important. Future research should be conducted in other Extension systems to develop a broad understanding of Generation Z's programming needs.

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Introduction and Problem Statement

Cooperative Extension is tailored to meet the needs of communities, and as community stakeholders shift and evolve, so should Extension programming priorities, as these are designed to work together to bring about positive change. Extension is a process that provides scientific knowledge from the Department of Agriculture and land-grant colleges to surrounding communities and the public to solve issues of the farm, home, and community (Collins, 2012; Hightower, 1973; USDA NIFA, 2024). By engaging in communities, Extension can lead positive change in states, the nation, and globally. It aims to connect the research to issues faced by people, allowing more people to benefit from scholarship (Collins, 2012; USDA NIFA, 2024). The mission of Extension is to contribute to helping communities acquire knowledge in agriculture, people and natural resources, and the life sciences (UF/IFAS Extension, 2022). Based on the ten-year roadmap, the priority missions of the University of Florida's Institute for Food and Agricultural Sciences (UF/IFAS) Extension are to promote food and environmental awareness; cultivate youth potential and community development; and to improve a healthier lifestyle for communities (UF/IFAS Extension, 2012). As younger adults enter the workforce, it is necessary to understand the thoughts of Generation Z as the next generation of Extension users, agents, and volunteers. Generation Z is defined as individuals born between 1995 and 2010 (Seemiller & Grace, 2016). The literature surrounding this generation continues to develop, particularly surrounding the impact of the COVID-19 pandemic (Dolot, 2018). Literature pre-dating the pandemic indicates Generation Z is a motivated, socially active generation that is marked by entrepreneurship and positive views on social change (Seemiller & Grace, 2016). Generation Z is the primary generation engaged in higher education and currently entering the workforce. Understanding current college students' perspectives on Extension topics can help adjust future Extension priorities and highlight topics that are viewed as important by this key demographic area as they become more prevalent Extension users. While prior work indicates college-aged students are not familiar with Extension, once exposed to Extension they see value in Extension (McLeod-Morin et al., 2023) and continue to be an important audience group to consider for building a future for Extension systems beyond current generations of Extension users (Baker et al., 2011; McLeod-Morin, 2023).

Theoretical and Conceptual Framework

Researchers approached this study with the philosophy that Extension should aspire to be a learning organization as defined by Senge's five disciplines of learning organizations: Building a shared vision, systems thinking, mental models, team learning, and personal mastery (Senge, 2006). Innovation in systems thinking is key in agriculture, health, and human sciences to respond to rapidly changing demands and knowledge that reaches people who depend on it. Extension, in partnership with USDA NIFA, translates research into action to build a system that offers cutting-edge discoveries from research to turn knowledge into practice (USDA NIFA, 2024). All five of Senge's five disciplines of learning organizations are critical because of the interlinked and integrated needs of a learning organization (Senge, 1994), and in the full data collection process of the UF/IFAS Extension system all five have been utilized. However, the

portion of the study reported here related to Generation Z college students focused on two of the five: systems thinking and mental models.

In organizational management and change literature, systems thinking is defined as the concept that organizations are integrated, dynamic systems that nest within each other (Burke, 2013). Thus, an organization cannot think about individual needs without recognizing the consequences to other parts of the system and to the universal system (Senge, 1994). To develop a full picture of what is happening within a connected system, opposing viewpoints and all different but interconnected types of thinking deserve consideration. Mental models are similarly complex and operationalized as the core values of all employees and stakeholders that shape the organizational identity. An organization's success is dependent on its ability to adapt to new mental models when there is a shift in values of employees and stakeholders (Senge, 1994). When individuals within an organization develop the capacity to challenge and reshape their mental models, it fosters a culture of continuous learning and adaptation, enabling the organization to navigate complex challenges effectively. The current study proposes that a shift may occur when asking Generation Z their preferences for future programming and education for Extension. If new priorities are set by one generation, systems thinking proposes that because of the interconnected systems, this change in one area can ripple through the entire organization (Sterman, 2000). While understanding the viewpoints of past generations and current stakeholders will always remain important, looking to the future may offer a greater understanding of where priorities will be in the future. This holistic perspective helps in anticipating and addressing emerging issues, enhancing resilience, and making informed, proactive decisions to prepare for the future. By combining mental model transformation with systems thinking, while building on current literature of existing mental models and systems thinking of Extension and connected entities like USDA NIFA organizations can not only adapt to change but also proactively shape their strategies and structures to thrive in an ever-evolving landscape (Senge, 2006; Sterman, 2000).

Purpose

The purpose of this study was to identify programming values of Generation Z college students related to Extension to offer insight into future programming and adaptation of current systems within Extension to prepare for the next generation of stakeholders. With the assistance of software, we divided Generation Z college students into different subfactors based on their perceived differences using self-reported demographic data. In addition to examining the Extension items that each subfactor was concerned with, this study also analyzed which items were less prioritized. Based on the results, this study could further inform the current development of Extension programming areas and discuss potential future priority areas.

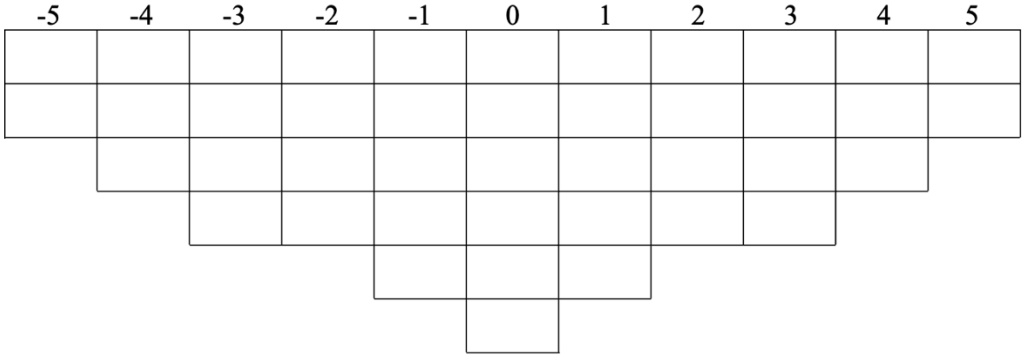
Methods

Q-methodology was determined as the best technique to aid researchers in quantitatively capturing student opinion at a moment in time while enrolled at a land-grant institution (Watts

& Stenner, 2012). To better understand Generation Z's perceptions of extension topics, we used 42 programming areas for UF/IFAS Extension, originally developed by Narine et al. (2020), and further refined by Harder et al. (2023). These 42 programming areas served as a pre-determined concourse (Watts & Stenner, 2012). The programming areas were categorized into three programming areas of focus: people (f = 15), economy and jobs (f = 11), and the environment (f = 16). A total of 158 undergraduate students enrolled at the University of Florida participated in ranking the program areas on a scale of most important to least important. The forced distribution was established based on the 42 programming areas used as statements, which established the Q-Set for this study (see Figure 1). The two additional statements over the 11 nodes were placed in the highest and lowest scores giving a more polar distribution over the 42 statements.

Figure 1

Forced Distribution Used to Collect Data in the Q-Sort Process



Due to the nature of data saturation within Q-Methodology, deeper analysis was difficult with the full dataset. Thus, researchers took a purposive subsample with unique identifiers to make a less homogenous population as their P-Set (Watts & Stenner, 2012), which is the recommended practice in Q-Methodology (Stenner et al., 2008). Priority was placed on having representation of gender, location, and prior Extension experience. This resulted in 21 participants which aligns with the Q-methodology's standard of having a P-set for saturation that is equivalent to half of the sorting statements to allow proper statistical analysis (Watts & Stenner, 2012). These participants' Q-sorts were entered in KADE software for analysis. Factor extraction was completed using a principal components analysis, resulting in three factors that had significant eigenvalues, which is indicative of the factor's significance statistically (Watts & Stenner, 2012). One of the participants did not correlate strongly enough with any factor resulting in 20 students' data that were included in the factor rotations at a significance of 5% (p < .05) (Watts & Stenner, 2012). The three factors explained 52% of study variance with a more substantial break between factor three and four with 7% of the variance explained at the next factoring. Factors were then rotated on all data in the study excluding Q-sorts with a factor relevance which was less than .60 and factor loadings that were less than .40 on the remaining factors (Watts & Stenner, 2012). Factor analysis was completed using Q-sort values, with particular attention to distinguishing statements for each factor and factor arrays. Analysis of

these elements of the data were given a title to best represent the opinions of the individuals in each factor.

Limitations exist for this study focused on the population of interest and a lack of details for priority areas for Extension. All participants were enrolled in a required writing course in the College of Agricultural and Life Sciences at the University of Florida which limits an encompassing understanding of all members of Generation Z who will be Extension users. The population also skews to the older sector of Generation Z which may have differing opinions and interest in Extension priority areas than the younger members who are still in secondary school. Q-methodology with a pre-determined concourse prevents participants from adding additional items which may reflect a differing priority area. This particularly highlights the current Extension priority areas but does not address a potential gap of other areas.

Findings

The sample was predominantly female (*f* = 14; 70%), four were males (20%), two identified as non-binary (10%). Half were juniors (*f* = 10; 50%), five (25%) were sophomores, four (20%) were seniors, and one was a freshman (5%). These students grew up almost equally in rural (*f* = 7; 35%), subdivision (*f* = 6; 30%), and downtown/in town (*f* = 7; 35%) areas. Over three-fourths of participants had yet to participate in programming from Extension (*f* = 16; 80%). Based on the factoring results, the final factors one to three included six, six, and eight students respectively. We extracted three factors with between six and eight defining variables and composite reliability of above 0.80 (see Table 1). Factor Q-sort values where each factor placed the statement on the distribution board, which is its perceived value (see Table 2).

Table 1

Factor Characteristics

	Factors		
Characteristics	1	2	3
No. of Defining Variables	6	6	8
Average Reliability Coefficient	.80	.80	.80
Composite Reliability	.96	.96	.97
Standard Error of Factor Z Scores	.20	.20	.17

Table 2

Factor Q-Sort Values for Each Statement

		Factors		
No.	Statement	1	2	3
1	Preserving farmland	-2	-5	1
2	Protecting water quality	-2	-5	3
3	Protecting air quality	-2	-4	2
4	Ensuring safe food handling practices to prevent foodborne illness	1	-4	1
5	Assisting farmers in agricultural production	-2	-3	-2
6	Strengthening the local food system	1	-4	-3
7	Promoting economic development	-1	-3	-5
8	Ensuring individuals have access to affordable healthy food	3	-3	-1
9	Helping youth develop leadership, citizenship, and other life skills	4	-3	-3
10	Getting more adults involved in mentoring youth	3	-2	-4
11	Reducing obesity through educational programs	1	-2	-1
12	Helping consumers make healthy food choices	2	-2	-1
13	Providing physical fitness education	2	-2	-1
14	Preventing chronic disease	4	-1	3
15	Helping rural communities improve their quality of life	0	-1	-4
16	Assisting local government with land use decisions	-3	-1	-2
17	Helping communities be better prepared for natural disasters	0	-1	0
18	Helping households become more energy efficient	0	-1	0
19	Building the capacity of community nonprofits	2	0	-4
20	Helping urban communities improve their quality of life	0	0	-5
21	Assisting local businesses with land use decisions	-3	1	-2
22	Preserving foods for home use (e.g., canning, dehydrating)	1	1	0
23	Helping first-time homeowners make smart financial decisions	0	2	-2
24	Addressing alcohol abuse	0	2	0
25	Addressing prescription drug abuse	-1	5	2
26	Addressing illegal drug abuse	-1	4	0
27	Addressing mental health	5	3	3
28	Preventing suicide	3	4	4
29	Building healthy families	4	5	2
30	Strengthening couple and/or marital relationships	3	4	1
31	Teaching healthy relationship skills to teens	5	3	1
32	Strengthening workforce readiness	1	1	-1
33	Helping households reduce water use	-1	2	-3
34	Composting, reducing, and recycling consumer goods	-1	1	3
35	Strengthening the financial well-being of small businesses	2	3	0
36	Controlling invasive plants	-3	3	1
37	Protecting the coastal environment	-3	2	4
38	Protecting freshwater resources (e.g., lakes, rivers, springs, wetlands)	-4	0	4
39	Reducing saltwater intrusion	-4	1	-3
40	Protecting the marine environment	-5	0	5
41	Controlling invasive pests (e.g., animals, insects)	-4	0	2
42	Protecting natural habitats and ecosystems	-5	0	5

Factor one, Economic and People-Centric Factor, explained 23% of the variance, with six defining variables, a composite reliability of 0.96, and an Eigenvalue of 4.73. Students in factor one prioritized people over the environment. Extension topics related to people and economy and jobs got significantly higher Z scores. Results indicated this factor prioritizes nurturing youth and addressing food and health issues. In addition, it should be noted that the economy and job topics with priorities in this factor had a relationship to the people and community elements, such as ensuring individuals have access to affordable healthy food and building the capacity of community nonprofits. On the contrary, all the lowest priority areas for this factor fell into the environment category. Demographics in factor one included four juniors, one senior, and one sophomore; only the sophomore was a prior Extension user. Four of them were females and the other two were male. All rural/urban options were represented within this factor, and they were from different College of Agricultural and Life Sciences majors. This Economic and People-Centric factor shows a commonality in this group of individuals to strongly emphasize economic growth, job creation, and social well-being, while showing less concern for environmental sustainability (see Table 3).

Table 3

Economic and People-Centric: Factor High and Low Priority Areas

	Low Z	High Z	Category
Helping youth develop leadership, citizenship, and other life skills		X	People
Ensuring individuals have access to affordable healthy food		X	Econ. and jobs
Helping consumers make healthy food choices		X	People
Getting more adults involved in mentoring youth		X	People
Building the capacity of community nonprofits		X	Econ. and jobs
Providing physical fitness education		X	People
Strengthening the local food system		X	Econ. and jobs
Ensuring safe food handling practices to prevent foodborne illness		X	Econ. and jobs
Reducing obesity through educational programs		X	People
Promoting economic development		X	Econ. and jobs
Composting, reducing, and recycling consumer goods	X		Environment
Controlling invasive plants	X		Environment
Reducing saltwater intrusion	X		Environment
Controlling invasive pests (e.g., animals, insects)	X		Environment
Protecting freshwater resources (e.g., lakes, rivers, springs, wetlands)	X		Environment
Protecting natural habitats and ecosystems	X		Environment
Protecting the marine environment	X		Environment

Note. Categories are highlighted in colors to show differentiation visually: People = pink; Economy and jobs = yellow; Environment = green

Factor two, People-Environment Centric with Limited Focus, explained 19% of the variance, with six defining variables, a composite reliability of 0.96, and an Eigenvalue of 4.09. Students in factor two highly prioritized Extension topics about people and the environment, particularly when the two are connected. They also had one high priority for the economy and jobs, but it was focused on a human element (helping first-time homeowners make smart financial decisions). Most of the lowest priorities for this factor were economy and job, followed closely by some environmental issues. However, it is worth noting that the environmental programming areas that this factor prioritized included a human element, such as "helping households reduce water use," while those with lower priorities did not have a human element identified (e.g., protecting air or water quality). Students in factor two were from all years of school and all different majors across the University of Florida. Three of them were prior Extension users and two were unsure. All samples in this factor were female and lived outside of cities. This People-Environment Centric with Limited Focus factor represents individuals who strongly value the well-being of people and the environment but do not place a high priority on specific issues related to food and air quality (see Table 4).

Table 4

People-Environment Centric with Limited Focus: Factor High and Low Priority Areas

	Low Z	High Z	Category
Addressing prescription drug abuse		X	People
Addressing illegal drug abuse		X	People
Controlling invasive plants		X	Environment
Helping first-time homeowners make smart financial decisions		X	Econ. and jobs
Helping households reduce water use		X	Environment
Addressing alcohol abuse		X	People
Reducing saltwater intrusion		X	Environment
Assisting local businesses with land use decisions		X	Environment
Addressing mental health	X		People
Ensuring individuals have access to affordable healthy food	X		Econ. and jobs
Assisting farmers in agricultural production	X		Econ. and jobs
Strengthening the local food system	X		Econ. and jobs
Protecting air quality	X		Environment
Protecting water quality	X		Environment
Preserving farmland	X		Environment

Note. Categories are highlighted in colors to show differentiation visually: People = pink; Economy and jobs = yellow; Environment = green

Lastly, factor three, Environmental-Centric, explained 10% of the variance, with eight defining variables, a composite reliability of 0.97, and an Eigenvalue of 2.15. Students in factor three prioritized environmental topics above all else. Most of the lowest-priority topics for this factor

were economy and job, with only one other significantly low priority in the environmental category (Helping households reduce water use). This study inferred that factor three was so environmentally focused, they did not prioritize programming related to the residential element of water use due to prior connections to this or related topics. Two sophomores, four juniors, and two seniors were in factor three, with different majors across the college. None of the students were prior Extension users. The gender of this factor included two males, four females, and two non-binary students. All rural/urban options were represented within this factor. The Environmental-Centric factor can be described as individuals who prioritize environmental sustainability above all else and who do not prioritize economic growth, job creation, and people-centric aspects of society (see Table 5).

Table 5

Environmental-Centric: Factor High and Low Priority Areas

	Low Z	High Z	Category
Protecting natural habitats and ecosystems		X	Environment
Protecting the marine environment		X	Environment
Protecting freshwater resources (e.g., lakes, rivers, springs, wetlands)		X	Environment
Protecting the coastal environment		X	Environment
Controlling invasive pests (e.g., animals, insects)		X	Environment
Protecting water quality		X	Environment
Protecting air quality		X	Environment
Preserving farmland		X	Environment
Strengthening couple and/or marital relationships	X		People
Teaching healthy relationship skills to teens	X		People
Strengthening the financial well-being of small businesses	X		Econ. and jobs
Strengthening workforce readiness	X		Econ. and jobs
Helping first-time homeowners make smart financial decisions	X		Econ. and jobs
Helping households reduce water use	X		Environment
Building the capacity of community nonprofits	X		Econ. and jobs
Helping rural communities improve their quality of life	X		Econ. and jobs
Helping urban communities improve their quality of life	X		Econ. and jobs
Promoting economic development	X		Econ. and jobs

Note. Categories are highlighted in colors to show differentiation visually: People = pink; Economy and jobs = yellow; Environment = green

Conclusions, Discussion, and Recommendations

This sample of Generation Z, college-students born between 1997 to 2012 at the University of Florida enrolled in a course in the College of Agriculture and Life Sciences, fell into three different factors based on ranking of values and need for programming. These factors were: (a)

Economic and People-Centric; (b) People-Environment Centric with Limited Focus; and (c) Environmental-Centric. All factors were less likely to value programming related to the economy and job issues. This could reflect their stage of life as full-time students who are not engaged with the workforce in a full-time capacity during their time at a university, which supports previous work in this area (Baker et al., 2011; McLeod-Morin et al., 2023). However, when looking to build programming for the future for Extension, those who are less likely to have been Extension users (Factors 1 & 3) had clear programming focus areas of interest in 1) economic development when focused on people aspects and 3) environmental programming, which confirms this audience continues to offer potential value in engaging in Extension programming earlier once exposed positively (Baker et al., 2011; McLeod-Morin et al., 2023). Interestingly, those who were more likely to have used Extension before (Factor 2) valued more variety in programming. This may speak to the nature of Extension as a whole and the value placed on the importance of a variety of programming areas. Additionally, it may provide support for introducing Extension programming and resources available to current students through a larger-scale initiative while they are still students on campus.

Results speak to a clear need for programming related to the environment and the protection of natural resources (Factor 3). Additionally, there is a clear need for building people and addressing societal concerns like drug and alcohol abuse (Factor 1). For non-urban and prior Extension user audiences (Factor 2), it will be important to develop programming that connects environmental issues with people and societal issues. Programming for economy and job areas may also gain more traction and interest with these Gen Z audiences if they connect to how these affect the environment and/or people. These elements are not currently as explored within the scope of Extension but should be examined as Extension reconsiders its future scope of work. While these results are not surprising given the culture of Generation Z (Seemiller & Grace, 2016), these may require a system thinking approach (Senge, 2006) in integrating within the current Extension programming structure. Competition for funding of programs and expansion of programs is always a balance, and new mental models may need to be adopted to respond to the values of Generation Z stakeholders within the current Extension system. The Extension system's success depends on adapting to stakeholders' changing needs and values (Burke, 2013; Senge, 1994; 2006). This requires ongoing flexibility as stakeholders move into new life stages.

Beyond a programmatic standpoint, it is important to note that many undergraduate students in this research who are enrolled in a college related to agriculture and related sciences were unfamiliar or unsure if they had personally engaged with Extension. Being a prior Extension-user had an impact on students' perspectives related to programming. Information, and potentially direct engagement, regarding Extension should be included in colleges of agriculture, particularly land-grant institutions to ensure each student is aware of the Extension system and what it may offer to them in their future careers and personal life as they continue to develop and become contributing members of society.

Further research into other generations' priorities would be a useful addition to the literature, particularly if it was possible to compare those who are Extension users and non-Extension

users. Replication of this study on a national scale, or within other land-grant institutions, could create a broader understanding of programmatic priorities of Generation Z as they enter the workforce. Q-Sort methodology offers potential for other Extension systems to explore programming needs and priorities through repeating this process, which could offer deeper understanding of current and future needs and priorities for Extension, USDA NIFA, and other partnering organizations across the United States.

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